Nursing students' attitudes towards obese people, knowledge of obesity risk, and self-disclosure of own health behaviours

TITLE PAGE

Nursing students' attitudes towards obese people, knowledge of obesity risk, and self-disclosure of own health behaviours: an exploratory survey.

Miss Nicola Gormley, Community Nurse, Western Health and Social Care Trust, Derry, UK

Dr Vidar Melby, Senior Lecturer, School of Nursing and Institute of Nursing and Health Research, Ulster University, Derry, BT48 7JL, tel: 028 71675227, email: v.melby@ulster.ac.uk

(1) Funding Source: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
(2) Conflict of Interest: the authors declare that there is no conflict of interest.
(3) Ethical Approval: the authors confirm that all required ethical approvals have been obtained.

HIGHLIGHTS

- Overweight and obesity has become an epidemic.
- Nursing students frequently engage in unhealthy lifestyle behaviours.
- Nurses of the future should display healthy lifestyle behaviours.
- Nursing curricula should include an emphasis on a shared learning space that facilitates students' interrogation of all different perspectives of healthy lifestyle behaviours.

ABSTRACT

Background: The rates of people being overweight and obese are recognised as global public health concerns. Negative attitudes towards obese and overweight people are prevalent amongst health care professionals. Nurses and nursing students have a significant role in health promotion of people who are obese or overweight and can assist people in achieving healthy lifestyles. However, evidence suggests that nurses and nursing students fail to engage in healthy lifestyles themselves and display negative attitudes towards obese and overweight people. Such negative behaviours put nurses and nursing students in a precarious position when advising overweight and obese people to adopt healthy lifestyles.

Objectives: This study aimed to ascertain nursing students' obesity risk knowledge, their attitudes towards obese and overweight people, and their own health promoting lifestyle behaviours.

Design: A descriptive correlational study was used.

Setting: One university in the United Kingdom.

Participants: A total of 210 nursing students enrolled on a university degree course in Adult or Mental Health Nursing in years 1, 2 and 3.

Methods: Data were collected using three valid and reliable questionnaires: Obesity Risk Knowledge Scale, Attitudes Towards Obese Persons Scale and the Health Promoting Lifestyle Profile. Dependent variables were correlated with independent variables on field of study, year of study, and gender.

Results: Results showed that nursing students engage in unhealthy lifestyle behaviours and fail to meet government recommended levels for physical activity. Nursing students had poor knowledge on obesity risk and displayed neutral attitudes towards overweight and obese people.

Conclusions: Educational providers of nursing courses should embrace the need for nursing students to interrogate and enhance their own healthy lifestyle behaviours as an integral component of the pre-registration education course. This may strengthen the credibility and suitability of nursing students as future nurses in health promoting activities of patients who are overweight and obese.

KEYWORDS

Nursing students, education, health promotion, lifestyle behaviours, overweight, obesity.

INTRODUCTION

The World Health Organisation (2017b) has declared that the rates of overweight and obesity have reached epidemic proportions. Being overweight is a major risk factor for many chronic diseases such as cancer, diabetes and heart disease, and as such overweight and obesity should be viewed as global public health concerns. However, being overweight and obese also increases the likelihood of developing a range of other health conditions such as lower back injury (Reed *et al.* 2014). Marquez et al. (2017) found that obese people, when compared with non-obese people, were referred more often for certain investigative procedures as well as being referred more often to allied health professionals. Costs associated with managing health issues associated with people being overweight and obese are considerable. Public Health England (2017) claimed that the estimated cost of people being overweight and obese to the United Kingdom (UK) National Health Service (NHS) was £6 billion and suggested this could increase to £9.7 billion by 2050. It is thought that obesity causes approximately 2.8 million deaths per year worldwide, placing it as the fifth leading risk for global deaths (Green. 2016) and is second only to smoking in terms of its adverse impact on health (National Obesity Forum. 2015). While obesity is common and serious it is a preventable condition. Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health (World Health Organisation. 2017a). The most widely used measure of obesity is the Body Mass Index (BMI), defined as weight divided by the square of height (kg/m^2). A person is classified as overweight if their BMI is 25-29.9, obese if their BMI is 30-39.9, and a person with a BMI of 40 or more is said to be severely obese (Health Assured 2019).

Search strategy

Searches of the electronic databases ProQuest, Science Direct, Sage, and Wiley were supplemented by hand-searching reference lists of retrieved articles. Boolean operators ‘AND’ and ‘OR’ were used to maximise search effectiveness and efficiency using the following key words and phrases: obesity, overweight, nurses, nursing students, attitudes, knowledge, health promotion. A total of 156 research articles were

retrieved, of which 27 were found to be relevant to the topic. Articles were excluded if they were not in English language or were more than 10 years old. Articles selected focused on lifestyles of nurses and nursing students, obesity risk knowledge among nursing students, and attitudes towards overweight and obese individuals among nurses and nursing students.

BACKGROUND

Nurses (as well as other clinicians) have a central role in addressing the public health priority of reducing the high rates of overweight and obesity (Nicholls et al. 2016). Critical to this role is the promotion of healthy lifestyles. Nurses' health-related behaviours influence both the extent to which they engage people in health promotion activities such as nutrition and exercise (Fie et al. 2013) and the extent to which people accept the advice given (Hicks et al. 2008). Existing evidence points to patterns of poor health-related behaviours among nurses, including low levels of physical activity (Malik et al. 2011) and unhealthy diets high in sugar and fat and low intakes of fruit and vegetables (Blake et al. 2011). Consequently, many nurses and nursing students are overweight and obese (Blake et al. 2011). In a 2012 study of 4996 nurses and midwives in New Zealand, Australia, and the UK, Bogossian et al. (2012) found that 61.9% of participants were overweight and obese (32.8% overweight, 24.7% obese, 3.4% morbidly obese). Kyle et al. (2016) found in a cohort of 411 Scottish nurses that 69% were either overweight or obese. Kyle et al. (2017), in a study of healthcare professionals in England that included 422 nurses, found that 25% of nurses were obese while 61% were overweight. The study showed that nurses had the highest prevalence of obesity when compared with other healthcare professionals.

Fillingham *et al.* (2014) argued the importance of nurses being able and confident to intervene with patients when obesity is an issue relevant to health. Pearl *et al.* (2012) suggested that such an intervention can be influenced by the healthcare professionals' attitude towards obesity. Obesity stigma is pervasive and individuals with obesity experience stigma from health professionals, employers, and educators (World Health Organisation 2017). Poon and Tarrant (2009) used the Fat Phobia Scale and the Attitudes Towards Obese Adult Persons Scale in a study of registered nurses (n = 198) and nursing students (n=352). The study measured attitudes towards obese persons and attitudes towards the management of obese patients

and evidenced a negative attitude amongst nurses that labelled obese patients as lazy, unattractive, inactive, and lacking in self-control and willpower. Keyworth et al. (2013) conducted qualitative, semi-structured interviews with 20 nursing students, and reported that nursing students blamed patients for being overweight due to a lack of self-control and failing to adopt a healthy lifestyle. A systematic review carried out by Zhu et al. (2011) concluded that overweight and obese patients were perceived more negatively from normal weight clinicians than from clinicians who were overweight themselves. Creel and Tillman (2011) argued that, if nursing students held negative views of obese patients, quality of care could be compromised as a result.

Nursing students are the next generation of registered nurses and an important part of the future healthcare workforce (Klainin-Yobas *et al.* 2015). Promoting healthy lifestyle behaviours in nursing students could assist in their health promoting role (Deasy *et al.* 2016). To facilitate the development of positive views of overweight and obese people, nursing students need to gain an understanding of the physical and mental health impact on a person from being overweight and obese. Equipped with such awareness nursing students should be prepared to provide comprehensive patient care in patients who are overweight and obese, including the provision of health promoting lifestyle activities (Mangold and Markiewicz. 2014).

Theoretical framework

The theoretical framework for this study was based on the Theory of Planned Behaviour (Ajzen. 2011). This theory suggests that the best predictor of actual behaviour is a person's intention to perform the behaviour. Such intention is determined by the three independent constructs of attitude, subjective norms, and perceived behavioural control. Attitudes relate to the individual's evaluation of the behaviour, subjective norms reflect an individual's perception that others expect them to perform the behaviour, and perceived behavioural control is an individual's perception of how much control they have over performing the behaviour (Ajzen. 2011). Subjective norms can define the predicted behaviour of a group, for example, nursing students. When individuals perceive themselves as part of a group, they are more likely to exhibit behaviours associated with the social norm for that group rather than their own personal attitude. The Theory of Planned Behaviour suggests that

individuals are more likely to engage in particular behaviours if they believe that there are benefits and few costs associated with it (Swift et al. 2006).

The Theory of Planned Behaviour has been effective in predicting health-related behaviours such as diet and exercise (Chung and Fong. 2015). While multiple factors may be implicated in why people become overweight or obese, a key health promoting aim is to support people to increase their physical activity and reduce calorific intake. Nurses and nursing students can use the Theory of Planned Behaviour as a framework to consider their own lifestyle and attitudes alongside their intentions to support a healthy lifestyle in others, and may subsequently be able to influence the factors believed to predict behaviour change in patients they care for (McKenzie. 2014).

OBJECTIVES

The key objective of this study is to determine nursing students' obesity risk knowledge, their attitudes towards overweight and obese people, and their own self-reported health promoting behaviours.

There are three focused research questions inherent in this objective:

1. What are the self-reported health promoting behaviours in nursing students?
2. What are nursing students' knowledge regarding the health risks associated with obesity?
3. What are nursing students' attitudes towards overweight and obese people?

METHODS

Study design

A descriptive correlational design was employed in this study. The purpose of descriptive research is to describe and document aspects of a situation as it naturally occurs (Parahoo 2014). Polit and Beck (2012) claimed that descriptive research can assist in developing a knowledge base that can act as a springboard for other quantitative research.

Sampling

Participants were recruited from one university in the UK, receiving students from all socioeconomic groups. The target population for the study were all full-time students on the three-year BSc Hons pre-registration Adult and Mental Health nursing courses (N=750). There were no exclusion criteria. The Raosoft® Sample Size Calculator (Raosoft 2017) was used to determine the number of participants needed for the study. The calculation showed that with a 5% margin of error, 90% confidence level, 50% response distribution, and a population size of 750, a sample size of 200 was required to get results that reflected the target population.

Instruments

Students were asked to complete three questionnaires, Attitudes Toward Obese People scale (ATOP) (Bagley et al. 1989), the Obesity Risk Knowledge scale (ORK-10) (Swift et al. 2006), and 17 items from the Health Promoting Lifestyle Profile 11 (HPLP-II) (Walker et al. 1995) that focused on health activity and diet.

The ATOP is a 20-item Likert rating scale that measures stereotypical attitudes about obese people. Each question asks respondents to indicate the extent of agreement or disagreement to a specific statement, such as “Obese workers cannot be as successful as other workers” and “Severely obese people are usually untidy”. Scores range from 20 to 120, where higher scores reflect more positive attitudes toward obese people. In previous testing the ATOP has Cronbach’s alpha reliability ranges from .80 to .84 (Allison et al. 1991).

The ORK-10 scale is a 10-item instrument measuring knowledge regarding the health risks associated with obesity. The obesity-related comorbidities used in the item pool represent meaningful examples of physical health consequences of in which obesity is recognised risk factor within the UK population and in which obesity has significantly added to the burden of disease. The scale includes items such as “Obesity does not increase the risk of developing high blood pressure” and “Obesity increases the risk of getting bowel cancer”. The scale is designed to be self-completed with respondents being required to judge whether statements are 'True' or 'False'. Responses are treated as dichotomous variables where correct responses score one point, while incorrect responses score zero points. Scores on the ORK-10 scale range between zero and 10 with higher scores indicating higher levels of knowledge. The ORK-10

scale has been reported to be reliable, discriminant and valid, with a Cronbach alpha of .83 (Swift et al. 2006).

The original HPLP-II is a 52-item summated behaviour rating scale that employs a 4-point response format to measure the frequency of self-reported health-promoting behaviours, conceptualised as a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfilment of the individual. Items include “Exercise vigorously for 20 or more minutes at least three times a week” and “Limit use of sugars and food containing sugar”. Responses range from 1 (never) to 4 (routinely). An overall score is obtained by calculating a mean of the respondent’s responses to the questions; the higher the score, the healthier the reported lifestyle. The HPLP-II was evaluated by the developers using item analysis, factor analysis, and reliability measures and has a reported Cronbach alpha of .92. Whilst a healthy lifestyle includes a range of behaviours, participants were only asked the 17 scale items related to physical activity levels and dietary intake. These items relate directly to the objective of the study and is appropriate as, according to Gupta and Gaur (2016), there are no other specific tools available to assess dietary intake and activity patterns of nurses. For this study, we will call this HPLP-II-17 to distinguish it from the original 52-item HPLP-II.

Data was collected on demographic variables on programme of study, year of study, and gender to allow for exploration of differences within the student population.

Ethical considerations

Ethical approval was obtained from the University Research Governance committee, and administrative permission to carry out the study was granted from Head of School of Nursing. Participants were contacted via email and were provided with a Participation Information Sheet that included an explanation of the research that clearly stated that they were assumed to have given consent if they completed the online questionnaire. No identifying demographic data were used; thus students’ anonymity was assured.

Data collection

Data were collected from participants using an online survey on the Qualtrics platform, and questionnaires took approximately 15 minutes to complete. The students were sent a reminder e-mail after one week and a final reminder e-mail one week later. Data were collected between April and July 2016.

Data analysis

All data analyses were conducted using Statistical Package for Social Sciences (SPSS version 24). Inferential and descriptive analyses were conducted. Frequency statistics show distribution of the scores while inferential statistics determine whether the findings from the population can be generalizable (Spector et al. 2014). The Kolmogorov-Smirnov statistic (Table 1) showed a significant value of .000, indicating violation of the assumption of normality (Pallant 2016). As this indicated that data were not normally distributed, non-parametric statistical testing was employed. Mann-Whitney U Tests were carried out to determine differences between gender and total scores in the ATOP, the ORK-10 and the HPLP-II-17, and between field of nursing and total scores in the ATOP, the ORK-10 and the HPLP-II-17. Kruskal-Wallis Tests were carried out to determine differences in scores between year groups. Spearman Rho correlation coefficients were calculated to determine possible relationships between nursing students' health behaviours, their attitudes, and their knowledge regarding obesity risk.

RESULTS

Sample size

Of the 750 surveys distributed, a total of 219 were returned (Response Rate = 29.2%), meeting the requirement from the sample size calculator for achieving data representative of the target population. Table 2 shows demographic characteristics of study participants.

HPLP-II-17 Scale

The HPLP-II-17 achieved Cronbach alpha value of .85. Factor analysis (using principal component analysis) suggested a four-factor structure (Eigenvalue>1), but the Scree plot analysis and Monte Carlo parallel analysis (as recommended by (Pallant. 2016) suggested a three-factor structure, accounting for 50% of the variance. Analysing the pattern matrix, factor one loaded highly on items related to healthy diet (α= .79), while factor 2 loaded highly on items related to exercise (α= .82). This provides some statistical validation for the selective use of the 17 items in the HPLP-II-17 for this study.

Scores on the HPLP-II-17 ranged from 22 to 67 (mean=41.8). Based on quartile scores, 57% of students presented with poor or very poor health promoting lifestyle (43% good/very good) (table 3). These scores are exemplified by individual items, in that only 20% of students routinely engage in vigorous exercise, 12% engage in light to moderate exercise, 8% routinely choose a healthy diet, only 12% of students routinely limit the use of sugars and food containing sugar, and 19% reported eating 2-4 pieces of fruit each day. Mann-Whitney U Tests on the HPLP-II-17 revealed no statistically significant differences with regards to gender (p=.80) and field of practice (p=.58), and a Kruskal-Wallis Test indicated no statistical difference between year groups (p=.55).

ATOP Scale

The minimum score on the ATOP was 63 while the maximum obtained was 107, mean 86.1 (scale range 0-120, higher score indicates more positive attitudes). Recoding the ATOP Scale score into quartiles (0-30 Very negative attitudes; 30.01-60 negative attitudes; 60.01-90 positive attitudes; 90.01-120 very positive attitudes), All students displayed positive or very positive attitudes towards obese people. The mean score of 86.1 is located at the upper end of the positive range. Cronbach alpha reliability testing obtained value of .84, suggesting a reliable instrument.

A Mann-Whitney U Test revealed no significant difference (p = .279) in the ATOP between Adult and Mental Health students or between males and females (p = .806). A Kruskal-Wallis Test did not show any significant differences across year groups in the ATOP (p = .288).

Factor analysis (using principal component analysis) initially suggested a five-factor solution (Eigenvalues > 1). Analysis of the variance and the Screeplot indicated a possible two-factor solution accounting for 32.5% of the variance, and this two-factor solution was supported by Monte Carlo parallel analysis. Factor 1 would appear to represent nursing students' opinions of obese people while factor 2 would appear to represent nursing students' opinions of how obese people perceive themselves.

ORK Scale

In the student group, 3.8% (n = 7) scored 9 while 2.7% (n = 5) scored 1 with a mean score of 5.7. Dividing the total ORK score into quartiles (Table 4) 36% had very poor to poor knowledge while 48% had good to very good knowledge. 16% of the sample had no responses to this scale.

A Mann-Whitney Test revealed a statistically significant difference (p= .003) in obesity risk knowledge between Adult and Mental health student groups, with Mental health students demonstrating higher levels of knowledge. No statistical differences were found in relation to gender or year group.

Scale correlations

The relationship between total scores of the HPLP-II-17, ATOP and ORK was investigated using Spearman's Rank Order Correlation. No statistically significant correlations were found. Considering the philosophy of health promotion models, one could conclude that it confirms there is no direct link between knowledge and attitudes and behaviours, as suggested in the Theory of Planned Behaviour (TPB) (Ajzen 2011). The TPB postulates that three variables (attitudes, subjective norms, perceived behavioural control) affect a person's behavioural intention which in turn dictates whether the eventual behaviour is exhibited. Clearly there are intermediary factors that contribute to the exhibition of behaviours that are not covered by the Health Belief Model (HBM) (Ogden 2012), which predicts that behaviour is a result of core beliefs, including the individual's perception of susceptibility to illness, its severity and cost. Like the TPB, the HBM suggests a focus on health motivation and perceived control as determining factors in behaviour prediction.

DISCUSSION

The aim of this study was to investigate associations between nursing students' knowledge regarding obesity, their attitudes towards overweight and obese people and their self-reported health promoting behaviours, specifically physical activity and dietary intake. There are limitations to this study. The findings reported are based on self-reported data from a sample of nursing students at a single university, and some respondents may under-report or over-report certain health behaviours. However, the survey was anonymous and participants self-reported engaging in negative health behaviours. It is possible that students may hold negative attitudes, but because of their professional role they may be reluctant to express negative attitudes. The Nursing and Midwifery Council (2018) requires that nursing students demonstrate a positive attitude towards all individuals regardless of personal views. Given that all participants in this study were nursing students, it is possible that some level of bias may have affected their responses. A qualitative component could have been added

to the design which may have captured more depth and context-rich data that may have helped in the interpretation of the survey data. Finally, the answers in the ORK may have been guessed and there was a lot of missing data in this scale, thus it is risky to generalise these findings.

Overall, the results showed only minimal statistically significant differences with regards to gender, field of practice, or year groups. A Mann-Whitney Test revealed a statistically significant difference in obesity risk knowledge between Adult and Mental Health student groups, with mental health students demonstrating higher levels of knowledge. This may be explained by the hypothesis that mental health nursing students are exposed to theory and practice of people with eating disorders in acute or community mental health settings, thus their knowledge is could be greater than the equivalent Adult nursing students. Overall knowledge levels were poor, and Seah *et al.* (2018), in a literature review, reported inadequate knowledge levels of healthcare professionals caring for patients with eating disorders.

No statistical differences were found in relation to gender or year group. Gender differences might have been expected, as gender differences have been noted in respect of other health behaviours such as tanning behaviours in which female students engage in considerably more risk behaviours (Gambla *et al.* 2017), and concerns about weight (and thus dieting) are conventionally associated with women (Ogden 2012). Year group differences could have been expected in two directions. Either, as students proceed through the course they are exposed to obese nurses and patients, their attitudes become more positive and their own health behaviours may improve. Conversely, attitudes may become less positive, in which it is difficult to predict the direction of behaviour change, if any, always bearing in mind, as this study has confirmed, that there are no direct causative association between knowledge, attitudes and behaviour.

The World Health Organisation (2010) stated that adults aged between 18–64 years should do at least 150 minutes of moderate-intense aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intense aerobic physical activity throughout the week. The findings in this study showed poor evidence of exercise activity amongst nursing students, supporting the findings in the cross-sectional study by (Rodriguez-Gazquez et al. 2016) that used a lifestyle assessment questionnaire on (n=380) nursing students. (Geok et al. 2015) used the HPLP-II on a cohort of nursing students (n=189) in Malaysia and reported that the physical activity

sub-scale received the lowest score (mean = 1.74). (Malik et al. 2011) compared nurses and nursing students in the UK. They found that nursing students were less likely to take part in regular physical activity than registered nurses and reasons given included, 'I don't have time to be physically active (71.5%) and 'Can't be bothered' (32%). There are proven benefits to leading a healthy lifestyle, including reduced risk of a range of diseases, maintaining a healthy weight and improved self-esteem (Department of Health 2011). The World Health Organisation. (2017a) have stated that at least 2.8 million people are dying yearly as a result of being overweight or obese.

Maintaining low levels of physical activity and a poor diet are known risk factors for overweight and obesity (Stephens et al. 2014). Leidy (2013) stated that several dietary factors including skipping breakfast have been identified to play a critical role in the aetiology of obesity. Poor dietary behaviours were exhibited in this study, with almost a quarter of the nursing students reporting they never eat breakfast and a low intake of fruit and vegetables. In total 36% did not meet the UK National Health Service recommendations for *5 A Day (Fruit &Vegetables),* regarded as a minimum diet requirement to maintain a healthy weight and keep your heart healthy (National Health Service 2018). Leidy (2013) noted that findings from cross-sectional studies have confirmed that young adults who eat breakfast have a higher-quality diet, eat fewer unhealthy snacks, have better body weight management and exhibit better glucose control throughout the day. Furthermore, Rodriguez-Gazquez et al. (2016) reported that 90.3% of nursing students regularly consumed junk food. A potential explanation for this could be due to the study schedule combined with placement and financial constraints of nursing students, which could contribute to a diet consisting of convenience foods, increasing the risk of becoming overweight or obese.

Participants expressed neutral attitudes towards obese people, supporting findings reported in a cross-sectional study by Poon and Tarrant (2009) that measured attitudes towards obese people in 352 undergraduate nursing students and 198 registered nurses, with registered nurses displaying higher levels of fat phobia and more negative attitudes than nursing students. To avoid developing weight bias towards their patients and colleagues, nurses and nursing students need to understand the causes of overweight and obesity. The World Health Organisation (2017) stated that oversimplifying the causes of obesity contribute to weight bias. Thus, while the focus must be on the individual's behaviour, nurses must not neglect

the contributory influence of social and environmental factors. Experiencing weight stigma can increase unhealthy eating behaviours, potentially exacerbating overweight and obesity (Major *et al.* 2014).

Evidence tells us that attitudes and skills are developed at undergraduate level (Keyworth et al. 2013) and that nurse education is known to affect the quality of future health care practice (Poon and Tarrant 2009). Nursing students are central to our future nursing workforce thus nursing research and education must evolve to include a focus on tackling obesity. Creating a shared educational learning space is known to have an important impact on learning (Elkington and Bligh 2019). It brings people together, encourages exploration, collaboration and discussion on all kinds of topics within a non-judgmental atmosphere, and can according to (Elkington and Bligh 2019), frame an unspoken message of exclusion, disconnectedness and disengagement which would seem crucial in tackling obesity.

CONCLUSIONS

This study aimed to investigate associations between nursing students' knowledge regarding obesity, their attitudes towards overweight and obese people and their self-reported health promoting behaviours (specifically physical activity and dietary intake). Nursing students exhibit low levels of knowledge of obesity, neutral attitudes to obese people, and poor physical activity and dietary health behaviours. Due to the link between lifestyle factors and chronic disease, it is important to understand the prevalence of these behaviours among nursing students to promote behaviour change and healthy lifestyle choices.

In the UK, nursing students are required to reflect on their attitudes and adhere to the professional code of conduct as laid down by the Nursing and Midwifery Council, which should ensure that all patients receive non-biased care regardless of weight. Registered nurses act as role models for nursing students and their attitudes may exert an influence on biases developed by nursing students, but there is a risk of inherent weight bias amongst registered nurses also. It might be of interest, in further research, to delve deeper into nursing students' beliefs by measuring or exploring any associations between students own BMI and any biases held towards obese people.

Today's nursing students are our future registered nursing professionals and should display behaviours that improve and protect their own health, enabling them to offer effective health promotion and education to their patients. This could indicate a need to increase the focus on healthy lifestyle behaviours within the nursing curriculum. Creating a shared educational space that enables nursing students to engage with all perspectives associated with overweight and obesity in a non-judgmental manner, emphasising personal, professional, and societal responsibilities of nurses to exhibit healthy lifestyles could be a progressive step towards achieving a healthier nursing workforce and patient population in the future.

REFERENCES

Ajzen, I., 2011. The theory of planned behaviour: reactions and reflections. Psychology & Health. 26(9), 1113-1127.

Allison, D.B., Basile, V.C., Yuker, H.E., 1991. The measurement of attitudes toward and beliefs about obese persons. International Journal of Eating Disorders. 10(5), 599-607.

Bagley, C.R., Conklin, D.N., Isherwood, R.T., Pechiulis, D.R., Watson, L.A., 1989. Attitudes of nurses toward obesity and obese patients. Perceptual and Motor Skills. 68(3 Pt 1), 954.

Blake, H., Malik, S., Mo, P.K., Pisano, C., 2011. 'Do as say, but not as I do': are next generation nurses role models for health? Perspectives in Public Health. 131(5), 231-239.

Bogossian, F.E., Hepworth, J., Leong, G.M., Flaws, D.F., Gibbons, K.F., Benefera, C.A., Turner, C.T., 2012. A cross-sectional analysis of patterns of obesity in a cohort of working nurses and midwives in Australia, New Zealand, and the United Kingdom. International Journal of Nursing Studies. 49(6), 727-738.

Chung, L. M. Y. and Fong, S. S. M. 2015. Predicting actual weight loss: A review of the determinants according to the theory of planned behaviour. Health Psychology Open. 2(1),doi: 10.1177/2055102914567972.

Creel, E., Tillman, K., 2011. Stigmatization of Overweight Patients by Nurses. Qualitative Report. 16(5), 1330-1351.

Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., Mannix-McNamara, P., 2016. Predictors of health of pre-registration nursing and midwifery students: Findings from a cross-sectional survey. Nurse Education Today. 36, 427-433.

Department of Health, 2011. UK physical activity guidelines. DoH, London.

Elkington, S., Bligh, B., 2019. Future Learning Spaces. 2019 Advance HE, Teeside University.

Fie, S., Norman, I.J., While, A.E., 2013. The relationship between physicians' and nurses' personal physical activity habits and their health-promotion practice: A systematic review. Health Education Journal. 72(1), 102-119.

Fillingham, A., Peters, S., Chisholm, A., Hart, J., 2014. Early training in tackling patient obesity: a systematic review of nurse education. Nurse Education Today. 34(3), 396-404.

Gambla, W.C., Fernandez, A.M., Gassman, N.R., Tan, M.C.B., Daniel, C.L., 2017. College tanning behaviors, attitudes, beliefs, and intentions: A systematic review of the literature. Preventive Medicine. 105, 77-87.

Geok, S.K., Yusof, A., Lam, S.K., Japar, S., Leong, O.S., Fauzee, M.S.O., 2015. Physical Activity and Health-Promoting Lifestyle of Student Nurses in Malaysia. Journal of Biosciences and Medicines. 3, 78-87.

Green, M.A., 2016. Do we need to think beyond BMI for estimating population-level health risks? Journal of Public Health. 38(1), 192-193.

Gupta, S., Gaur, S., 2016. Lifestyle Patterns, Eating Practices and Obesity among Nurses: A Review. International Journal of Health Sciences & Research. 6(11), 258-266.

Health Assured, 2019. National Obesity Awareness Week 2019. Available from: https://www.healthassured.org/blog/national-obesity-awareness-week-2019/. Accessed 30/01/2019. Health Assured, Manchester.

Hicks, M., McDermott, L.L., Rouhana, N., Schmidt, M., Seymour, M.W., Sullivan, T., 2008. Nurses' body size and public confidence in ability to provide health education. Journal of Nursing Scholarship. 40(4), 349-354.

Keyworth, C., Peters, S., Chisholm, A., Hart, J., 2013. Nursing students' perceptions of obesity and behaviour change: implications for undergraduate nurse education. Nurse Education Today. 33(5), 481-485.

Klainin-Yobas, P., He, H.G., Lau, Y., 2015. Physical fitness, health behaviour and health among nursing students: A descriptive correlational study. Nurse Education Today. 35(12), 1199-1205.

Kyle, R., Neall, R., Atherton, I., 2016. Prevalence of overweight and obesity among nurses in Scotland: A cross-sectional study using the Scottish Health Survey. International Journal of Nursing Studies. 53, 126-133.

Kyle, R.G., Wills, J., Mahoney, C., Hoyle, L., Kelly, M., Atherton, I.M., 2017. Obesity prevalence among healthcare professionals in England: a cross-sectional study using the Health Survey for England. BMJ Open. 7(12), e018498. 10.1136/bmjopen-2017-018498.

Leidy, H.J., 2013. The Benefits of Breakfast Consumption to Combat Obesity and Diabetes in Young People. American Journal of Lifestyle Medicine. 7(2), 99-103.

Major, B., Hunger, J.M., Bunyan, D.P., Miller, C.T., 2014. The ironic effects of weight stigma. Journal of Experimental Social Psychology. 51, 74-80.

Malik, S., Blake, H., Batt, M., 2011. How healthy are our nurses? New and registered nurses compared. British Journal of Nursing. 20(8), 489-496.

Mangold, K., Markiewicz, K., 2014. Integrating an Obesity Simulation into Baccalaureate Nursing Education. Clinical Simulation in Nursing. 10, 476-484.

Marquez, M., McGuiness, W., Cross, R., Mitra, B., 2017. Obesity and the Emergency Short Stay Unit. International Emergency Nursing. 30 (Supplement C), 9-12.

National Health Service, 2018. 5 A Day. Public Health England, London. Available from: https://www.nhs.uk/live-well/eat-well/why-5-a-day/.

National Obesity Forum, 2015. State of the Nation's Waistline 2015 Turning Obesity Around: National New Year Resolution. Available from: http://www.nationalobesityforum.org.uk/images/state%20of%20the%20nations%20waistline%202015.pdf.

Nicholls, W., Pilsbury, L., Blake, M., Devonport, T.J., 2016. The attitudes of student nurses towards obese patients: A questionnaire study exploring the association between perceived causal factors and advice giving. Nurse Education Today. 37, 33-37.

Nursing and Midwifery Council, 2018. The Code: Professional standards of practice and behaviour for nurses, midwives and nursing associates. NMC, London

Ogden, J., 2012. Health psychology: a textbook. 5th ed. Open University Press, Maidenhead.

Pallant, J., 2016. SPSS survival manual: a step by step guide to data analysis using IBM SPSS. 6th ed. McGraw-Hill Education, Maidenhead, Berkshire, England.

Parahoo, K., 2014. Nursing research: principles, process and issues. 3rd ed. Palgrave Macmillan, Basingstoke.

Polit, D.F., Beck, C.T., 2012. Nursing research: generating and assessing evidence for nursing practice. 9th ed., International ed. Lippincott Williams & Wilkins, Philadelphia, Pa; London.

Poon, M.Y., Tarrant, M., 2009. Obesity: attitudes of undergraduate student nurses and registered nurses. Journal of Clinical Nursing. 18(16), 2355-2365.

Rodriguez-Gazquez, M.L.A., Chaparro-Hernandez, S., Gonzalez-Lopez, J.R., 2016. Lifestyles of nursing students from a Colombian public university. Investigacion y Educacion En Enfermeria. 34(1), 94-103.

Seah, X.Y., Kamaruzaman, N.R., Tham, X.C., Yobas, P.K., 2018. Nurses' perception of knowledge, attitudes and reported practice towards patients with eating disorders: A concurrent mixed-methods study. Archives of Psychiatric Nursing. 32(1), 133-151.

Spector, M., Merrill, D., Elen, J., Bishop, M.J., 2014. The Handbook of Research for Educational Communications and Technology. 4th ed. Springer, New York.

Stephens, S.K., Cobiac, L.J., Veerman, J.L., 2014. Improving diet and physical activity to reduce population prevalence of overweight and obesity: an overview of current evidence. Preventive Medicine. 62, 167-178.

Swift, J.A., Glazebrook, C., Macdonald, I., 2006. Validation of a brief, reliable scale to measure knowledge about the health risks associated with obesity. International Journal of Obesity. 30(4), 661-668.

Zhu, D., Norman, I.J., While, A.E., 2011. The relationship between health professionals' weight status and attitudes towards weight management: a systematic review. Obesity Reviews. 12(5), e324-37.

World Health Organisation, 2010. Global recommendations on physical activity for health. Available from: http://www.who.int/dietphysicalactivity/publications/9789241599979/en/. Accessed 31/1/2019. WHO, Geneva.

World Health Organisation, 2017. World Obesity Day: Understanding the social consequences of obesity. Available from: http://www.euro.who.int/en/health-topics/noncommunicable-diseases/obesity/news/news/2017/10/world-obesity-day-understanding-the-social-consequences-of-obesity. Accessed 30/01/2019. WHO, Copenhagen.

Table 1: Test of Normality

	Kolmogorov-Smirnov		
ITEM	Statistic	df	Sig.
What is your gender?	.526	211	.000
What branch of nursing are you studying?	.463	211	.000
What year of study are you currently in?	.228	211	.000

Table 2: Characteristics of study participants (n = 219, no answer=8, 3.7%, effective sample 211)

DEMOGRAPHIC VARIABLES	Answer Options	Frequency	Percent
Total Sample		211	
Field of Practice	Adult	156	73.9
	Mental Health	55	26.1
Gender	Male	24	11.4
	Female	187	88.6
Year Group	First	73	34.6
	Second	76	36.0
	Third	62	29.4

Table 3: HPLP-II-17 Intensity

	Frequency	Percent
Very poor health promoting lifestyle	8	3.7
Poor health promoting lifestyle	97	44.3
Good health promoting lifestyle	68	31.1
Very good health promoting lifestyle	11	5.0
Total	184	84.0

Table 4: ORK Score Range

Score Range	Score Description	Frequency	Percent
0-2.5	Very poor knowledge	8	3.7
2.51-5.0	Poor knowledge	71	32.4
5.01-7.5	Good knowledge	76	34.7
7.51-10	Very good knowledge	29	13.2
No response/system missing		35	16.0
	Total	219	100.0